

The background of the slide is a photograph of a wind farm at sunset. The silhouettes of several wind turbines are visible against a sky with soft, orange and yellow light from the setting sun. The image is partially obscured by a large, curved blue graphic element that sweeps across the bottom and right sides of the page.

# Resource Planning Process

## 2016 Resource Planning Working Group

November 2016

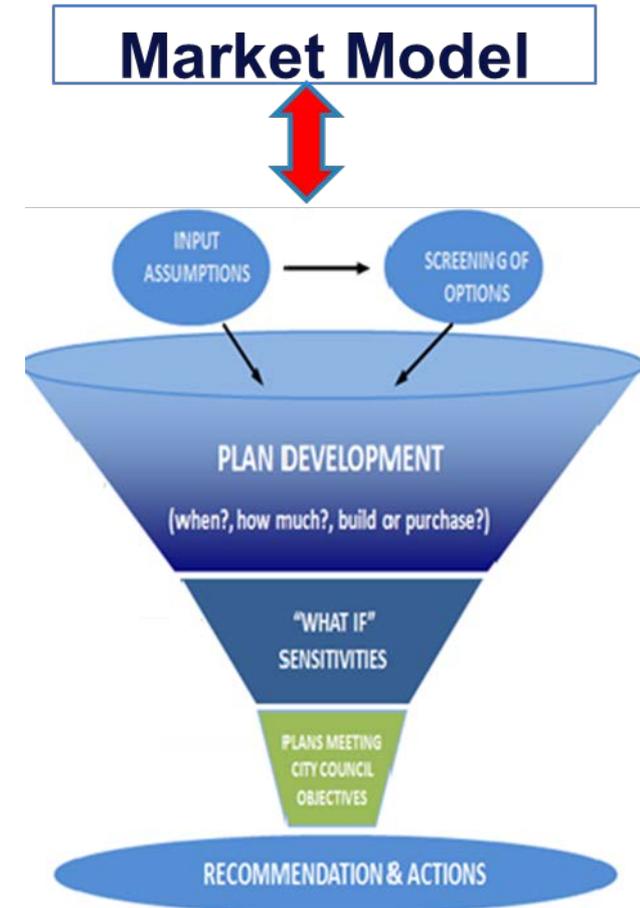


# Why do Resource Planning?

- To support the Austin Energy Strategic Plan
- To meet the objectives of the (ACCP) Austin Climate Protection Plan – net zero carbon emissions by 2050 (among other goals)
- To manage cost and risk of energy to our customers– Affordability goals and rate volatility
- Manage customer load with behind the meter programs such as rooftop solar, energy efficiency, demand response and Storage
- Other complimentary strategies and objectives such as those related to low income customers

What Resource Planning is not?  
A way to supply power to our customers

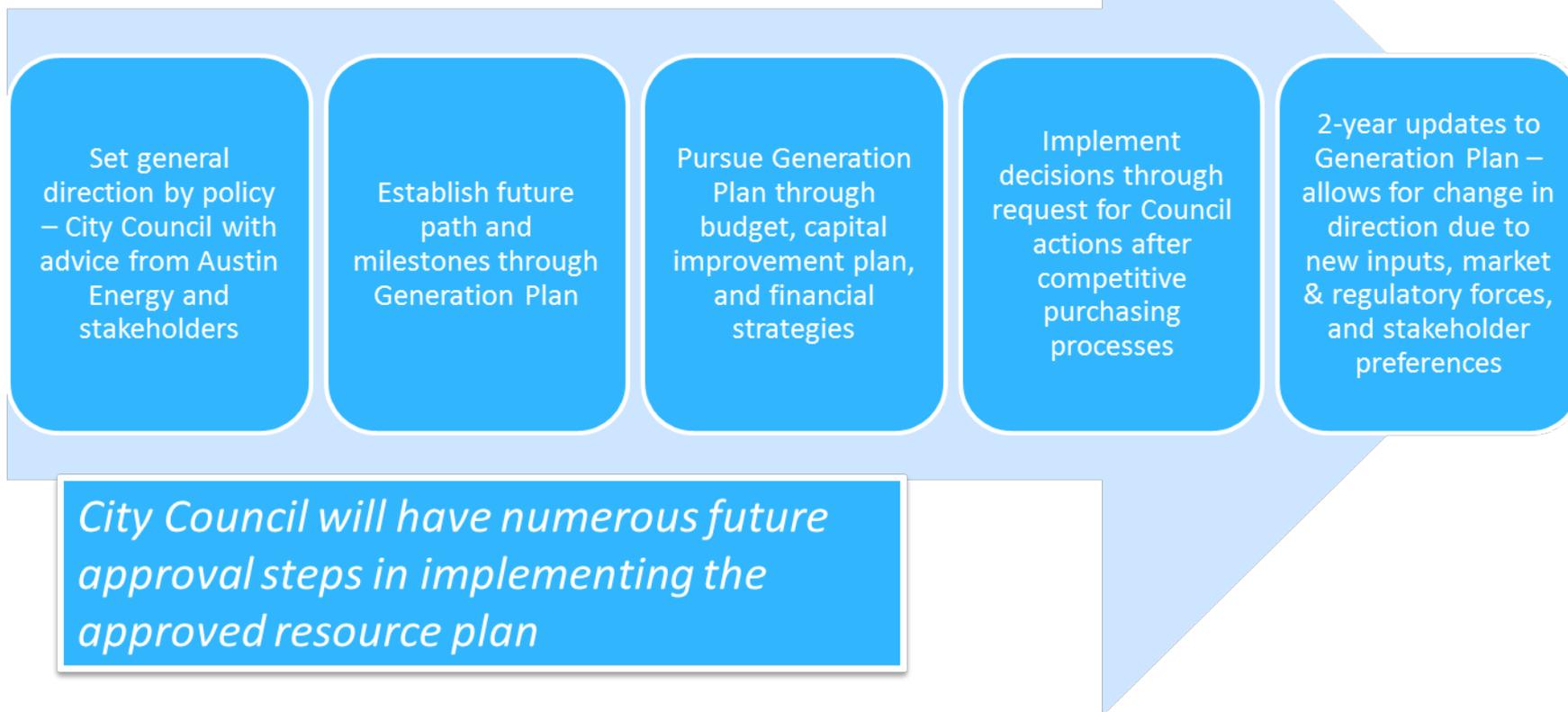
# Resource Planning: It's a Process...





# Resource Planning at Austin Energy

- The result of a multifaceted process that includes a measured system of choices and milestones over time



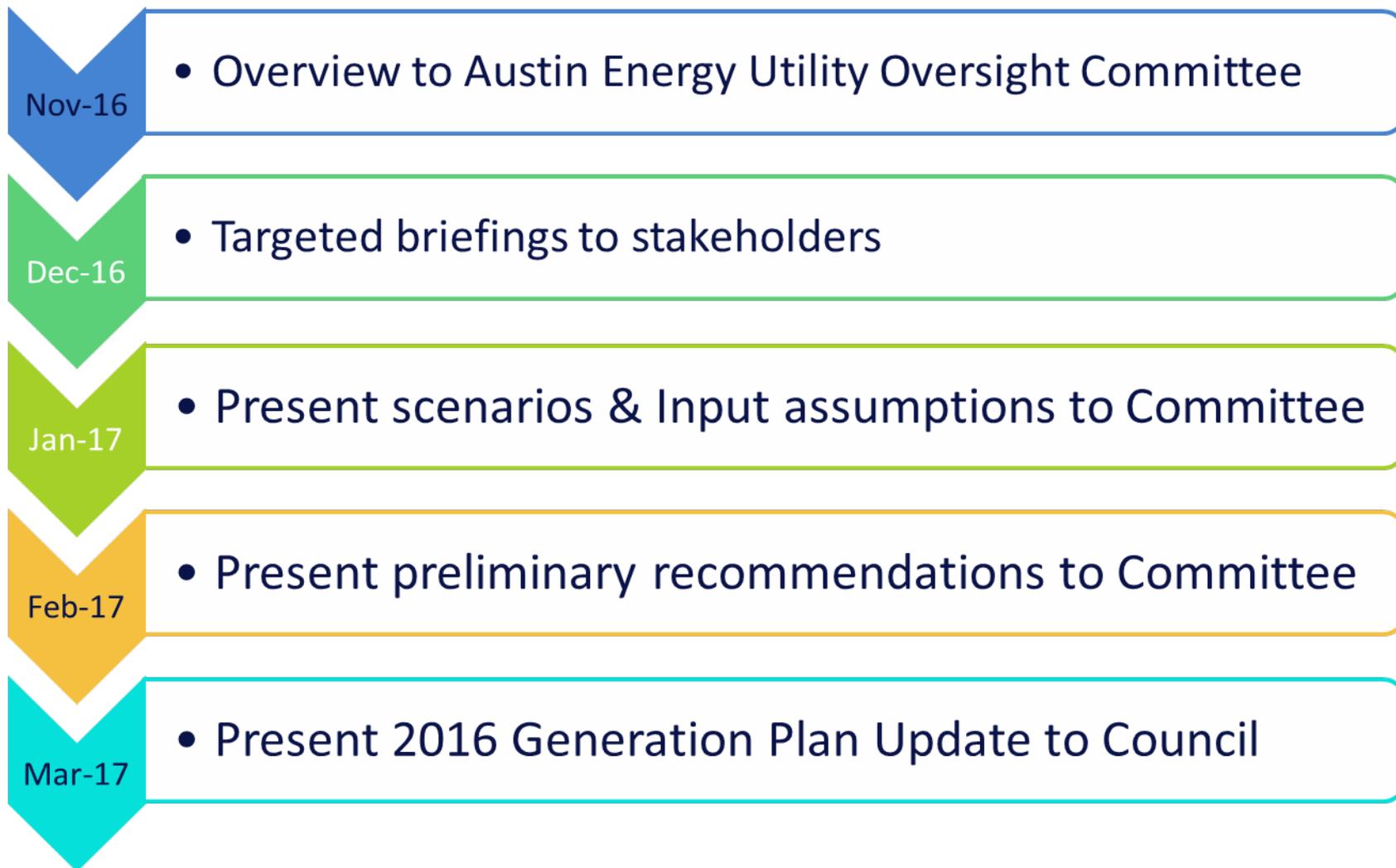


# Austin Energy Methodology

- AE uses integrated modeling tools to simulate market data, AE's load and generation assets, financial data along with emission modeling to assess resource plans
  - Uses UPLAN simulation modeling well suited to ERCOT's market design, risk analysis using Monte Carlo techniques as well as one-off scenarios
  - Inputs include: cost of gas, coal, nuclear, oil, carbon, cost of new build of various technologies, fixed and variable O&M for ERCOT generation
  - Calculates cost & revenues of ERCOT assets and pricing at each node – 6,600 data output points
  - Results modeled for rate impact and financial metrics
  - This approach in line with industry practices, Brattle endorsed AE methodology in 2015
  - Well trained highly experienced economists



# Resource Planning Update Timeline



# Recap of Goals & Directives from 2014 Update



- 2014 Austin Energy Resource Plan
  - 55% renewables by 2025
  - 900 MW Demand Side Management by 2025
    - 700 MW energy efficiency by 2020
    - Demand Response
      - 100 MW by 2020 and additional 100 MW by 2025
  - 950 MW solar by 2025
    - 110 MW Local Solar by 2020 and additional 90 MW by 2025 if affordable
    - 750 MW Utility Scale Solar by 2025
  - CO2 emissions
    - 20% reduction from 2005 levels by 2020
    - Retirement of Fayette Coal Plant by the end of 2023
  - Affordability
    - 2% limit per year
    - Rates should be in the lower 50th percentile statewide
  - 10 MW (lithium ion batteries) local storage by 2025 + 20 MW of thermal storage
  - Retire Decker steam units by 2019 and replace with 500 MW efficient combined-cycle – subject to a third party study

# Current Solar Portfolio



| Contract Name    | Type      | Size (MW)  | Start Date |
|------------------|-----------|------------|------------|
| Webberville      | Utility   | 30         | 12/28/2011 |
| East Pecos solar | Utility   | 118        | 12/31/2016 |
| Midway solar     | Utility   | 170        | 9/01/2018  |
| Roserock solar   | Utility   | 157.5      | 10/19/2016 |
| Upton solar      | Utility   | 150        | 8/31/2017  |
| Kingsbery        | Community | <u>2.3</u> | 4/26/2017  |
| Total            |           | 627.8      |            |

# Renewable Generation

